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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/050,994  
Filing Date: January 22, 2002  
Appellant(s): HUNTER ET AL.

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Steven B. Kelber  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 29 May 2008 appealing from the Office action mailed 26 June 2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,233,087	HAWKINS ET AL	05-2001
5,311,360	BLOOM ET AL	05-1994

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 3-8 and 10 stand rejected under 35 U.S.C. 102(e) as being anticipated by Hawkins et al US Patent 6,233,087.

In regard to claims 1 and 4, Hawkins et al disclose (see Figures 1 and 2) a reflective light processing element, comprising a substrate (52); a dielectric layer (58) formed on the substrate; a conductive trace (60, 62, 64) formed on the dielectric layer, the conductive trace allowing charges trapped in the dielectric layer to escape wherein said trapped charges are present at least on the surface of the dielectric layer as described in column 5, lines 41-60 and column 6, lines 15-50; and a plurality of ribbons (72a, 72b) formed above the substrate and the conductive trace wherein each of said ribbons comprise a top surface that is reflective and said reflective surfaces exhibit the same degree of reflectivity as described in column 6, lines 51-62 and as shown in Figure 2.

In regard to claim 5, Hawkins et al disclose (see Figures 1, 2 and 6) a high contrast grating light valve comprising a silicon substrate as described in column 4, lines 63-65; a protective dielectric layer (58) formed on the substrate; a first set of ribbons (72a) each with a first average width  $W_a$  and a second set of ribbons (72b) each with a second average width  $W_b$ , wherein the ribbons of the first set alternate between the ribbons of the second set and one of said first and second set of ribbons is configured to constructively and destructively interfere with an incident light source having a wavelength  $X$ ; wherein said substrate comprises a silicon wafer protected by a dielectric layer as shown in Figures 1 and 2; and a conductive trace (60, 62, 64) formed at least partly on the protective layer and in electrical contact with said substrate, allowing

charges trapped in the protective layer to escape wherein each of first and second set of ribbons comprise a top surface that is reflective and said reflective surfaces exhibit the same degree of reflectivity as described in column 5, lines 41-60 and column 6, lines 15-62.

Regarding claim 3, Hawkins et al disclose that said trapped charges are formed, with respect to the dielectric layer, during operation of said reflective light processing element as described in column 5, lines 41-67 and column 6, lines 1-50.

Regarding claim 6, Hawkins et al disclose that said dielectric layer comprises silicon dioxide as described in column 7, lines 50-60.

Regarding claim 7, Hawkins et al disclose that said conductive trace is comprised of aluminum as described in column 6, lines 8-10.

Regarding claim 8, Hawkins et al disclose that the width  $W_a \geq W_b$  as shown in Figures 1 and 2.

Regarding claim 10, Hawkins et al disclose that the reflective surfaces comprise aluminum as described in column 8, lines 30-33.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 9 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Hawkins et al U.S. Patent 6,233,087 in view of Bloom et al U.S. Patent 5,311,360.

Regarding claim 9, Hawkins et al teaches the invention as set forth above that the top surfaces of the ribbons in said first set and the top surfaces of the ribbons in said second set have reflective surfaces as described in column 8, lines 16-33 and as shown in Figures 1, 2 and 6.

However, Hawkins et al does not teach that the surface between the ribbons of the first set and second set has reflective surfaces.

Bloom et al does teach that the surface between the ribbons of the first set and second set has reflective surfaces as described in column 5, lines 53-56.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to ensure that the surface between the ribbons of the first set and second set is reflective as taught by Bloom et al for the device of Hawkins et al in order to enhance the reflectance of the surface area so as to improve the performance of the grating light valve.

#### **(10) Response to Argument**

The Appellants state (on page 9 of 22 of the Appeal Brief), that they intend to rely on five separate declarations to show that the subject matter of the claims was conceived of and reduced to practice, tested and shown to work for its intended purpose prior to the critical date of December 18, 1998. Further the Appellants state that each of

the declarations each of which will be considered separately below, are submitted to demonstrate testing of the proposed device.

In regard to the Declaration of the Inventors of January 2004 (listed as Exhibit C), the Appellants argue (on page 10 of 22 of the Appeal Brief) that the Declaration and its corresponding exhibits A through E, demonstrate that the device of the claims was conceived of, made and tested as evidenced by the documentary records of said exhibits A-E attached to Exhibit C.

In response to this argument, the Examiner wishes to point out that while the Declaration and corresponding exhibits show a summary of the invention (exhibit A), processing employed to make the invention (exhibit B), cross sectional representation of the invention (exhibit C), and a new etching process to make the invention (exhibit D), nowhere in either the Declaration or the corresponding exhibits do the Inventors state that testing of the device was undertaken or show any results of such testing to demonstrate that the claimed invention worked for its intended purpose to establish actual reduction to practice. Specifically, Exhibit C fails to provide any test data or indication that testing was done to confirm the point of novelty or nonobviousness of this invention, namely a conductive trace formed on a dielectric layer, allowing charges at the dielectric layer to escape (see recitation in claims 1 and 4, lines 4-5).

The Appellants further state (on bottom of page 10 of 22 and on the top of page 11 of 22 of the Appeal Brief) that the Declaration of Berger (submitted herein as Exhibit D) confirms the conception, preparation and testing of the invention.



In response to this argument, the Examiner has reviewed the Declaration of Mr. Berger and can find no definitive statement that confirms that the device was tested to show that it worked for its intended purpose. Mr. Berger only states that he is able to confirm that the subject matter of the patent application, described in the Declaration and Exhibits of January 2004, was completed at Silicon Light Machines in advance of December 18, 1998.

The Appellants further argue (on page 11 of 22 and the top of page 12 of 22 of the Appeal Brief) that in the Declaration of Hunter of July 2005 (listed herein as Exhibit E), Mr. Hunter discusses in detail a "runsheets" (exhibit A to this Declaration) maintained at the place of invention (originally, Silicon Light Machines, later acquired by Cypress Semiconductor) prior to December 18, 1998 which shows every step taken to make the invention. Mr. Hunter also prepared Exhibit B to this Declaration which is submitted to demonstrate that in fact each feature of the invention is reflected in the device made and tested at Silicon Light Machines prior to December 18, 1998 by showing the correlation between the recited features of the invention and the individual processing steps of Exhibit A to the Declaration. Moreover, Mr. Hunter stated that the grating light valves were tested to the satisfaction of Mr. Hunter and the co-inventors such that they "worked for the intended purpose" in that they showed utility as grating light valves. The Appellants further contend that beyond establishing that the device alters the amount of incident light reflected, established by competent testimony, there is nothing else to prove. However, the Applicants did attempt to provide further evidence (see discussion below in regard to Declaration of Hunter and Amm of April 2007).

In response to the Declaration of Hunter of July 2005, the Examiner wishes to point out that the "runsheets" only shows steps to make or produce the grating light valve. Furthermore, Mr. Hunter does not claim that the "runsheets" evidences testing of the invention, only its manufacture. Mr. Hunter does state that the device worked for its intended purpose in that it showed utility as a grating light valve but proffered no other evidence to support this assertion in his Declaration.

In the Declaration of Hunter and Amm of April 2007 listed herein as Exhibit F, the Appellants state (on page 12 of 22 of the Appeal Brief) that despite a thorough search, they had not unearthed a record that could be positively shown to correspond to actual testing conducted prior to December 18, 1998 although testifying that they did indeed do such testing. Exhibit A ("0-order Charging") dated 10 April 2007 to this Declaration was attached to show actual records and test results of the type of testing conducted but Hunter and Amm could not be absolutely certain that in fact the testing shown correlated with a test conducted prior to December 18, 1998 of the claimed invention. Nonetheless, the inventors testified that it was reflective of testing that did occur prior to December 1998 at Silicon Light Machines.

In response to the Declaration of Hunter and Amm of April 2007, the Examiner would like to point out that while Hunter and Amm make reference to testing and Exhibit A ("0-order Charging") to this Declaration shows some sort of charging test was conducted, the Applicants own statements indicate ambiguity and uncertainty as to exactly when the testing took place which is crucial to establishing a nexus between the claimed invention as conceived and its testing so as to establish actual reduction to

practice. For example, on page 3, paragraph 5 of the Declaration, the Applicants state on the record:

"Submitted herewith, as Exhibit A hereto, is a three page document which reflects the typical charging test that was conducted. The results are attributable to the device described above, and **may have been conducted prior to December 1998, but there is no way to be certain.**" (Bold Examiner's)

In the same paragraph 5 of the Declaration, the Applicants further state on the record:

**"Although the testing reflected in Exhibit A hereto cannot be described, by us, within a certainty to have occurred prior to December 1998,** it is reflective of the type of testing that did occur, as we recall, prior to December, 1998 at Silicon Light Machines." (Bold Examiner's)

Therefore, it is not at all clear that the testing in question occurred prior to December 1998 as evidenced by the Inventors own statements above. Furthermore, Exhibit A ("0-order Charging") dated 10 April 2007 which is attached to the Declaration of Hunter and Amm of April 2007 ostensibly to provide evidence that a device of the type claimed was tested at Silicon Light Machines prior to December 18, 1998 seems to indicate just the opposite. This is due to the fact that the footer of each page of Exhibit A to the Declaration has the logo for Cypress Semiconductor. The Appellants must show that testing occurred prior to December 18, 1998 to show actual reduction to practice; however, it is unlikely that Exhibit A shows testing occurring prior to this date since Cypress Semiconductor did not acquire Silicon Light Machines until August 2000.

The Appellants further cite the Declaration of Webb of April 2007 submitted herein as Exhibit G (on page 13 of 22 of the Appeal Brief) as further evidence that testing of the invention occurred prior to December 18, 1998 since Mr. Webb was

responsible for the design and type of testing reflected by Exhibit A ("0-order Charging") of the Declaration of Hunter and Amm of April 2007 at the time preceding December 1998 and was intimately familiar with the type of testing done demonstrating modulation of reflected light in response to application of electric fields and dissipation of charge built up in the dielectric layer through the provision of a conductive trace on that layer.

In response to this Declaration, the Examiner would like to point out on page 2, paragraph 3 of this declaration that Mr. Webb states on the record:

"I have reviewed Exhibit A attached to the Declaration of Hunter and Amm, which is a three page document bearing the title "0-order Charging". **I cannot be certain whether or not the testing reflected therein is in fact testing that was conducted prior to December, 1998**, but it is certainly reflective of the kind of testing done, prior to December 1998, testing that demonstrated modulation of reflected light in response to application of electric fields, and dissipation of charges built up in the dielectric layer through the provision of a conductive trace on that layer. This was a device successfully tested at Silicon Light Machines, prior to December, 1998." (Bold Examiner's)

The statements of Mr. Webb appear to be contradictory and ambiguous and cast doubt on whether the testing shown in Exhibit A ("0-order Charging") is to the claimed device in question prior to December 18, 1998 in order to establish actual reduction to practice. The Examiner must again point out it is unlikely that Exhibit A shows testing of the claimed invention occurring prior to this date since Cypress Semiconductor did not acquire Silicon Light Machines until August 2000.

The Appellants further argue on page 14 of 22 of the Appeal Brief that their sworn testimony and the submitted documents show the actual preparation of the device, the method and type of its testing and the results obtained prior to December 18, 1998. Further, the Appellants argue that the law does not demand that they

advance a single piece of documentation with a date in advance of December 18, 1998. Further, the Appellants maintain that while some documents may be missing the exact type of documents are advanced and the testimony of inventors and non-inventors alike is the same – that the testing took place with this kind of result prior to December 18, 1998 and there is no basis to deny it. The Appellants further contend that the evidence in a showing under Rule 131 is the testimony advanced and documents when available are confirmatory in nature.

In response to this argument, the issue at hand is whether the declarations submitted are effective to overcome the Hawkins reference by showing reasonable diligence as evidenced by actual reduction to practice. MPEP § 2138.05 states the requirements for actual reduction to practice, as follows:

For an actual reduction to practice, the invention must have been sufficiently tested to demonstrate that it will work for its intended purpose, but it need not be in a commercially satisfactory stage of development. If a device is so simple, and its purpose and efficacy so obvious, construction alone is sufficient to demonstrate workability. *King Instrument Corp. v. Otari Corp.*, 767 F.2d 853, 860, 226 USPQ 402, 407 (Fed. Cir. 1985).

Furthermore, testing is required to establish an actual reduction to practice as set forth in MPEP § 2138.05 as follows:

"The nature of testing which is required to establish a reduction to practice depends on the particular facts of each case, especially the nature of the invention." *Gellert v. Wanberg*, 495 F.2d 779, 783, 181 USPQ 648, 652 (CCPA 1974)

Therefore, MPEP § 2138.05 requires that the Applicant provide evidence of testing of the claimed invention to establish an actual reduction to practice. The Examiner would first like to point out that while some of Declarations indicate that testing took place, they

do not indicate whether in fact, it was the exact type of invention claimed, that is none of the declarations or supporting documentation specifically demonstrate the testing of the point of novelty or nonobviousness, i.e., the conductive trace formed on the dielectric layer allowing charges trapped at the dielectric layer to escape (see recitation in claims 1 and 4, lines 4-5). Secondly, the examiner has pointed out statements in the declaration which indicate some confusion and ambiguity as to when the testing of the claimed device actually occurred. It is not enough to say that testing of similar or like devices occurred, the question is whether the device as claimed was tested. Thirdly, the one piece of supporting documentation that seems to show testing of the dielectric layer and the conductive trace on the dielectric layer (see Exhibit A attached to the Declaration of Webb of April 2007 – “0-order Charging”), is questionable since every page of the exhibit displays the logo of Cypress Semiconductor which did not acquire Silicon Light Machines until August 2000. Therefore, the Appellants have failed to establish a nexus between the claimed invention as conceived, including recited elements and its testing to show that it operated in accordance with its intended purpose prior to December 18, 1998 in order to establish actual reduction to practice.

The Appellants further argue on pages 14 and 15 of 22 of the Appeal Brief, that they have provided sworn statements that the device was tested and shown to work for its intended purpose including objective evidence of exactly what was made, how it corresponds to the claims, and the results obtained. When the requisite dated document is unavailable, the testimony corroborated by non-inventors must be measured and accepted. The Appellants maintains that the examiner's refusal to

accept the detailed and reasonable testimony of the inventors and corroborators is without basis and not in accordance with the law. The Appellants further argue that the examiner is not free to contradict the testimony of the inventors and corroborators and that this is not an interference and thus the Examiner is not an advocate.

In response to this argument, the examiner has every reason to believe that he is in compliance with 37 CFR 1.131 as clarified in MPEP § 715.07 which pertains to the general requirements of facts and documentary evidence, the relevant passage being reproduced below:

Similarly, a declaration by the inventor to the effect that his or her invention was conceived or reduced to practice prior to the reference date, without a statement of facts demonstrating the correctness of his conclusion, is insufficient to satisfy 37 CFR 1.131.

It is these facts or lack of them supporting the correctness of the sworn testimony that are at issue. Indeed, the problem is not that examiner refuses to accept the testimony of the inventors and corroborators, it is that some of the testimony and supporting documentation appears to be ambiguous and in some cases contradictory (for example, exhibits F and G and the exhibit labeled "0-order Charging" attached to exhibits F and G). In response to the statement that the examiner cannot be an advocate since this is not an interference, the Appellants are directed to MPEP § 715.07 which states:

The facts to be established under 37 CFR 1.131 are similar to those to be proved in interference. The difference lies in the way in which the evidence is presented. If applicant disagrees with a holding that the facts are insufficient to overcome the rejection, his or her remedy is by appeal from the continued rejection.

Further, in the same section of the MPEP:

For the most part, the terms "conception," "reasonable diligence," and "reduction to practice" have the same meanings under 37 CFR 1.131 as they have in interference proceedings.

The Appellants further argue on the bottom of page 15 of 22 and page 16 of 22 of the Appeal Brief that the inventors and collaborators have provided objective evidence in the form of documents to show what kind of testing was done, the type of results obtained and why. While the witnesses are not absolutely certain that the specific documents submitted reflect a test conducted before December 18, 1998, they do testify that they are absolutely certain that kind of testing and those kinds of results were in fact done and obtained prior to December 18, 1998.

In response to this argument, the question at issue in order to establish actual reduction to practice is whether the **claimed** device was sufficiently tested to demonstrate that it will work for its intended purpose. To simply state that there was a "kind of testing" with "those kind of results" does not answer whether it was the claimed invention that was tested. The claimed invention and indeed the novel or nonobvious feature was a dielectric layer formed on a substrate and a conductive trace formed on the dielectric layer allowing charges trapped at the dielectric layer to escape (see recitation in claims 1 and 4, lines 4-5). The only documents that support testing of this feature are Exhibits F and G which include Exhibit A titled "0-order Charging" and it is in these very exhibits where the Inventors and collaborators are uncertain as to when the testing of the claimed device occurred. Furthermore, the exhibit titled "0-order Charging" is questionable since every page of the exhibit displays the logo of Cypress



Semiconductor which did not acquire Silicon Light Machines until August 2000. Therefore, the Appellants have failed to establish a nexus between the claimed invention as conceived, including recited elements and its testing to show that it operated in accordance with its intended purpose prior to December 18, 1998 in order to establish actual reduction to practice in order to overcome the Hawkins et al US 6,233,087 reference.

The Appellants argue on page 16 of 22 of the Appeal Brief that the rejection of claim 9 under 35 USC 103(a) as being unpatentable over Hawkins et al in view of Bloom et al must fail for the same reasons the rejection of claims 1, 3-8 and 10 for anticipation fails.

In response to this argument, the examiner references the responses to the arguments *supra* showing why the Examiner believes the Appellants have failed to establish actual reduction to practice thus maintaining Hawkins available as prior art.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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